

### REMARKS

This paper responds to the Office Action mailed on June 14, 2006, and the references cited therewith. Claims 1, 5, 8, 10 and 38 are amended and claims 3 and 4 are canceled such that claims 1-2, 5-14 and 37-42 are now pending in this application.

#### *Comment Made by the Examiner at Page 8 of the Office Action*

The Examiner states at page 8 of the Office Action that "Applicant is requested to reveal the publication date of the document cited on the PTO-892." Applicant respectfully requests that the Examiner identify with particularity the document that the Examiner is referring to in his request. Applicant will promptly reply to the Examiner's request once clarification is received from the Examiner.

#### *First §102 Rejection of the Claims*

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as being anticipated by Greenleaf (US Patent No. 3,312,348). See column 3, lines 20-30.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *M.P.E.P. '2131*. To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. V. Guardian Industries Corp.*, 75 F.3d 1558, 37 USPQ2d 1618 (Fed. Cir. 1996). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant can not find any teaching or suggestion in Greenleaf that the disclosed backwashing gravity flow filter includes spherical microbeads. Applicant notes that the conventional filter units 15 include gravel 20 and sand 21 (see col. 2, lines 64-72 of Greenleaf).

Therefore, Applicant respectfully submits that Greenleaf does not teach or suggest a filtration system that includes "wherein the filter media is spherical microbeads with diameters between 1mm and 3mm and a density that is between 8 kg/cubic meter and 48 kg/cubic meter" as recited in amended claim 1. Claim 2 depends from claim 1, and is patentable over Greenleaf for the reasons argued above, plus the elements in the claim.

Reconsideration and allowance of claims 1 and 2 are respectfully requested.

Second §102 Rejection of the Claims

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as being anticipated by Schulz (US Patent No. 5,032,294). See Figure 4.

Applicant can not find any teaching or suggestion in Schulz that the disclosed gravity filter includes spherical microbeads. Applicant notes that the each filter 12 includes a media bed 38 that is formed of sand or coal (see col. 5, lines 9-11 of Schulz).

Therefore, Applicant respectfully submits that Schulz does not teach or suggest a filtration system that includes “wherein the filter media is spherical microbeads with diameters between 1mm and 3mm and a density that is between 8 kg/cubic meter and 48 kg/cubic meter” as recited in amended claim 1. Claim 2 depends from claim 1, and is patentable over Schulz for the reasons argued above, plus the elements in the claim.

Reconsideration and allowance of claims 1 and 2 are respectfully requested.

First §103 Rejection of the Claims

Claims 1-14 and 37-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of AAPA (Applicant’s Admitted Prior Art) in view of either of Greenleaf (US Patent No. 3,312,438) and/or Schulz (US Patent No. 5,032,294). In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); MPEP § 2141.02.

Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Appellant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143. The Examiner must avoid hindsight. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990).

Applicant respectfully submits that a *prima facie* case of obviousness has not been established because there is no motivation or suggestion to combine AAPA and Schulz or Greenleaf. The Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

The court in *Fine* stated that:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so."

*Id.* (emphasis in original).

As part of maintaining the rejection, the Examiner states at page 4 of the Office Action that:

"The issue to be decided is whether it would have been obvious for one skilled in the art to modify the system admitted to be prior art by dividing the hydraulic loading area into a plurality of cells with smaller hydraulic loading areas."

Applicant respectfully agrees with this assertion.

The Examiner further states at pages 4-5 of the Office Action that:

"Both Greenleaf (US Patent No. 3,312,348) and Schulz (US Patent No. 5,032,294) disclose filters employing individual cells. See column 3, lines 20-30 of Greenleaf and Figure 4 of Schulz. In view of these disclosures, it would have been obvious to divide the hydraulic loading area of the system described as "prior art" by Applicant, into a plurality of cells. Such a modification would enable those skilled in the art to keep the majority of cells online, while individual cells are taken off line for periodic backwashing, routine maintenance and/or replacement of media. These advantages would have been readily apparent to those skilled in the art who have reviewed Greenleaf. See, for example, column 1, lines 45-50 and column 2, lines 55-70 of Greenleaf."

Applicant respectfully traverses these assertions.

The Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by

which the evidence is deemed to support such a finding. *In re Sang Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). Mere conclusory statements are unsatisfactory.

“With respect to Lee’s application, neither the examiner nor the Board adequately supported the selection and combination of the Nortrup and Thunderchopper references to render obvious that which Lee described. The examiner’s conclusory statements that ‘the demonstration mode is just a programmable feature which can be used in many different devices for providing automatic introduction by adding the proper programming software’ and that ‘another motivation would be that the automatic demonstration mode is user friendly and it functions as tutorial’ do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill in the art would have been lead to this combination of references, simply to use ‘[use] that which the inventor taught against its teacher.’ *W.L. Gore V. Garlock, Inc.*, 721 F. 2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).” *Lee*, at 1343, 1344.

Applicant can not see where the Office Action provides an adequate motivation to combine AAPA with Schulz or Greenleaf. Applicant respectfully submits that the Examiner’s statement is analogous to the conclusory statements made by the Examiner and Board in the *In re Lee* case quoted above. Applicant also respectfully submits that the only teaching or suggestion as to “the hydraulic loading area being divided into a plurality of cells with smaller hydraulic loading areas” in combination with microbeads within each cell is found in Applicant’s specification and claims.

The Examiner further states at page 5 of the Office Action that:

“The limitations recited in the various dependent claims, e.g., bead diameters, densities, bed depths, etc. are submitted to be inherent, or obvious in view of the references as combined above. In this regard, Applicant’s admissions made during the telephonic interview of January 3, 2006, are noted.”

Applicant respectfully traverses these assertions and notes for the record that Applicant’s attorney stated that the various parameters of the claimed filtration system (e.g., bead diameter, bead density, bed depth, and hydraulic loading area effect one another). Applicant’s attorney made no mention that that they are inherent or obvious.

Applicant respectfully notes that one of ordinary skill in the art would not look to split a hydraulic loading area into cells when the filter media is microbeads because of increased expense that would be required to fabricate the filtration system. The additional cost would be

incurred because of the extra structural members that are required in a filtration system where the hydraulic loading area is divided into cells.

Applicant further notes that in a conventional filtration system which includes microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter there is no need to add structural members for support because of the relatively low density of the microbeads. Since there is no structural need to add any structural members to the filtration system, one of ordinary skill in the art would want to avoid the cost of adding the structural members.

In addition, the motivation cited by the Examiner in Greenleaf (i. e., backwashing) to split the chamber into cells is not done with microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter because backwashing would harm the ability of the microbeads to filter by removing beneficial bacteria from the microbeads (see Applicant's spec. at page 2, lines 1-7).

The Examiner further states at page 5 of the Office Action that:

"The specific shape and size of the cells, absent a showing of unexpected results and/or critically specifically associated therewith, are design parameters that would have been routinely selected, or optimized by one skilled in the art."

Applicant respectfully traverses these assertions and directs the Examiner's attention to page 2, lines 15-20 of Applicant's specification which describe the filtering limitations that are associated with conventional systems where the hydraulic loading area of a chamber is not divided into cells. Applicant notes that dividing a chamber into a plurality of cells such that each cell has a hydraulic loading area less than 2.3 square meters improves the filtration capacity of the filtration system (see Applicant's specification at page 2, lines 23-25 and page 5, lines 11-14).

Applicant respectfully submits that the only teaching or suggestion as to "the hydraulic loading area being divided into a plurality of cells" where each cell includes microbeads and has a hydraulic loading area less than 2.3 square meters is found in Applicant's specification and claims. Since there is no motivation or suggestion to combine the cited references, the rejection should be withdrawn.

Reconsideration and allowance of claims 1-2, 5-14 and 37-42 are respectfully requested.

Second §103 Rejection of the Claims

Claims 1-14 and 37-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of AAPA (Applicant's Admitted Prior Art) and Funakoshi (US Patent No. 5,558,763). Applicant respectfully submits that a *prima facie* case of obviousness has not been established because there is no motivation or suggestion to combine AAPA and Funakoshi.

As part of maintaining the rejection, the Examiner states at page 5 of the Office Action that:

“In view of Funakoshi, it would have been obvious to divide the hydraulic loading area of the system described as "prior art" by Applicant, into a plurality of cells, for the reasons advanced by Funakoshi.”

Applicant respectfully traverses these assertions.

As discussed above, the Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. Applicant respectfully submits that the Examiner's statement is again analogous to the conclusory statements made by the Examiner and Board in the *In re Lee* case quoted above. Applicant also respectfully submits that the only teaching or suggestion as to “the hydraulic loading area being divided into a plurality of cells with smaller hydraulic loading areas” in combination with microbeads within each cell is found in Applicant's specification and claims.

The Examiner further states at page 6 of the Office Action that:

“The limitations recited in the various dependent claims, e.g., bead diameters, densities, bed depths, etc. are submitted to be inherent, or obvious in view of the references as combined above. In this regard, Applicant's admissions made during the telephonic interview of January 3, 2006, are noted.”

Applicant respectfully traverses these assertions and again notes for the record that Applicant's attorney stated that the various parameters of the claimed filtration system (e.g., bead diameters, bead densities, bed depths, and hydraulic loading areas effect one another.

Applicant's attorney made no mention that that they are inherent or obvious.

Applicant again respectfully notes that one of ordinary skill in the art would not look to split a hydraulic loading area into cells when the filter media is microbeads because of increased

expense that would be required to fabricate the filtration system. Applicant further notes that in a conventional filtration system which includes microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter there is no need to add structural members for support because of the relatively low density of the microbeads. Since there is no structural need to add any structural members to the filtration system, one of ordinary skill in the art would want to avoid the cost of adding the structural members.

In addition, the Examiner has not cited any motivation in Funakoshi to split the chamber into cells when using microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter. It is respectfully submitted that the Examiner's lack of comments relating to a motivation to combine AAPA and Funakoshi amounts to a form of Official Notice, which is timely traversed under MPEP 2144.03. Applicant respectfully requests that the Examiner either cite references in support of this position, or provide an affidavit if the Examiner is relying on personal knowledge, as required by 37 C.F.R. 1.104(d)(2).

The Examiner further states at page 6 of the Office Action that:

"The specific shape and size of the cells, absent a showing of unexpected results and/or critically specifically associated therewith, are design parameters that would have been routinely selected, or optimized by one skilled in the art."

Applicant respectfully traverses these assertions and directs the Examiner's attention to page 2, lines 15-20 of Applicant's specification which describe the filtering limitations that are associated with conventional systems where the hydraulic loading area of a chamber is not divided into cells. Applicant notes that dividing a chamber into a plurality of cells such that each cell has a hydraulic loading area less than 2.3 square meters improves the filtration capacity of the filtration system (see Applicant's specification at page 2, lines 23-25 and page 5, lines 11-14).

Applicant respectfully submits that the only teaching or suggestion as to "the hydraulic loading area being divided into a plurality of cells" where each cell includes microbeads and has a hydraulic loading area less than 2.3 square meters is found in Applicant's specification and claims. Since there is no motivation or suggestion to combine the cited references, the rejection should be withdrawn.

Reconsideration and allowance of claims 1-2, 5-14 and 37-42 are respectfully requested.

Third §103 Rejection of the Claims

Claims 1-14 and 37-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of AAPA (Applicant's Admitted Prior Art) and Junius (US Patent No. 5,558,763). Applicant respectfully submits that a *prima facie* case of obviousness has not been established because there is no motivation or suggestion to combine AAPA and Junius.

As part of maintaining the rejection, the Examiner states at page 6 of the Office Action that:

"Junius discloses baffles 350 (see Figure 6). In view of Junius, it would have been obvious to divide the hydraulic loading area of the system described as "prior art" by Applicant, into a plurality of cells, for the reasons advanced by Junius."

Applicant respectfully traverses these assertions. Applicant respectfully submits that the Examiner's statement is again analogous to the conclusory statements made by the Examiner and Board in the *In re Lee* case quoted above.

As discussed above, the Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. Applicant also respectfully submits that the only teaching or suggestion as to "the hydraulic loading area being divided into a plurality of cells with smaller hydraulic loading areas" in combination with microbeads within each cell is found in Applicant's specification and claims.

The Examiner further states at page 7 of the Office Action that:

"The limitations recited in the various dependent claims, e.g., bead diameters, densities, bed depths, etc. are submitted to be inherent, or obvious in view of the references as combined above. In this regard, Applicant's admissions made during the telephonic interview of January 3, 2006, are noted."

Applicant again respectfully traverses these assertions and again notes for the record that Applicant's attorney stated that the various parameters of the claimed filtration system (e.g., bead diameters, bead densities, bed depths, and hydraulic loading areas effect one another). Applicant's attorney made no mention that that they are inherent or obvious.

Applicant respectfully notes that one of ordinary skill in the art would not look to split a hydraulic loading area into cells when the filter media is microbeads because of increased expense that would be required to fabricate the filtration system. Applicant further notes that in



a conventional filtration system which includes microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter there is no need to add structural members for support because of the relatively low density of the microbeads. Since there is no structural need to add any structural members to the filtration system, one of ordinary skill in the art would want to avoid the cost of adding the structural members.

In addition, the Examiner has not cited any motivation in Junius to split the chamber into cells when using microbeads having a density that is between 8 kg/cubic meter and 48 kg/cubic meter. It is respectfully submitted that the Examiner's lack of comments relating to a motivation to combine AAPA and Junius amounts to a form of Official Notice, which is timely traversed under MPEP 2144.03. Applicant respectfully requests that the Examiner either cite references in support of this position, or provide an affidavit if the Examiner is relying on personal knowledge, as required by 37 C.F.R. 1.104(d)(2).

The Examiner further states at page 7 of the Office Action that:

"The specific shape and size of the cells, absent a showing of unexpected results and/or critically specifically associated therewith, are design parameters that would have been routinely selected, or optimized by one skilled in the art."

Applicant respectfully traverses these assertions and directs the Examiner's attention to page 2, lines 15-20 of Applicant's specification which describe the filtration limitations that are associated with conventional systems where the hydraulic loading area of a chamber is not divided into cells. Applicant notes that dividing a chamber into a plurality of cells such that each cell has a hydraulic loading area less than 2.3 square meters improves the capacity of the filtration system (see Applicant's specification at page 2, lines 23-25 and page 5, lines 11-14).

Applicant respectfully submits that the only teaching or suggestion as to "the hydraulic loading area being divided into a plurality of cells" where each cell has a hydraulic loading area less than 2.3 square meters in combination with microbeads within each cell is found in Applicant's specification and claims. Since there is no motivation or suggestion to combine the cited references, the rejection should be withdrawn.

Reconsideration and allowance of claims 1-2, 5-14 and 37-42 are respectfully requested.

*Fourth §103 Rejection of the Claims*

Claims 6 and 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz (US Patent No. 5,032,294). See Figure 4.

As discussed above, Applicant can not find any teaching or suggestion in Schulz that the disclosed gravity filter includes spherical microbeads. Applicant notes that the each filter 12 includes a media bed 38 that is formed of sand or coal (see col. 5, lines 9-11 of Schulz).

Therefore, Applicant respectfully submits that Schulz does not teach or suggest a filtration system that includes “wherein the filter media is spherical microbeads with diameters between 1mm and 3mm and a density that is between 8 kg/cubic meter and 48 kg/cubic meter” as recited in amended claim 1. Claims 6 and 7 depend from claim 1, and are patentable over Schulz for the reasons argued above, plus the elements in the claims 6 and 7.

Applicant further notes that there does not appear to be any teaching or suggestion in Schulz that the disclosed gravity filter describes “wherein each cell has a hydraulic loading area less than 2.3 square meters” as recited in claim 7, especially when each cell includes “spherical microbeads with diameters between 1mm and 3mm and a density that is between 8 kg/cubic meter and 48 kg/cubic meter”.

Reconsideration and allowance of claims 6 and 7 are respectfully requested.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (262) 646-7009 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By his Representatives,

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Date 8/25/06

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 25<sup>th</sup> day of August 2006.

Name

Signature